

SE MRC College Algebra Content Review

System of Linear Equations in Three Variables Section 5.2

Learning Objectives:

1. Verify the solution of a system of linear equations in three variables.
 2. Solve systems of linear equations in three variables.
 3. Solve problems using systems in three variables.
2. Solve the system. If there is no solution or if there are infinitely many solutions and the systems of equations are dependent, so state.

$$6x - y + 3z = -19$$

$$x + 3y - z = -8$$

$$3x + 3y - 4z = -11$$

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1. Determine if $(2, -6, 3)$ a solution of the system.

$$x + y + z = -1$$

$$x - 2y - z = 11$$

$$2x - y - 2z = 4$$

3. Solve the system. If there is no solution or if there are infinitely many solutions and the systems of equations are dependent, so state.

$$\begin{aligned}3x - 6y + 3z &= 12 \\x + 3y - z &= 0 \\6x - y - z &= 23\end{aligned}$$

4. Solve the system. If there is no solution or if there are infinitely many solutions and the systems of equations are dependent, so state.

$$\begin{aligned}3x + y &= -6 \\x + y - z &= -12 \\5x + 5y + z &= 0\end{aligned}$$

5. Solve the system.

$$-3x - y = 1$$

$$y - 2z = 6$$

$$x - 2y + z = -7$$

6. Find the quadratic function $y = ax^2 + bx + c$ whose graph passes through the given points.

$$(-1, 6), (-2, 2), (3, -58)$$

Answer Key:

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| 1. | The ordered triple is a solution to the system. |
| 2. | There is one solution. The solution set is $(-3, -2, -1)$. |
| 3. | There is one solution. The solution set is $(3, -2, -3)$. |
| 4. | There is one solution. The solution set is $(-2, 0, 10)$. |
| 5. | There is one solution. The solution set is $(-1, 2, -2)$. |
| 6. | $y = -4x^2 - 8x + 2$ |